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Kalıcı Organik Kirleticiler (KOK) ile Kirlenmiş Sahaların Tespiti ve iyileştirilmesi Projesi

KILAVUZ HAKKINDA İSTİŞARE TOPLANTISI

EYLÜL 2022

Ivan Holoubek
Kirlenmiş Sahalar Uzmanı

TÜRKİYE CUMHURİYETİ
ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

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Info on POPs and Approaches of POPs contaminated sites around the world

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07/09/2022

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Çevre ve İklim Eylemi Sektör Operasyonel Programı

Kalıcı Organik Kirleticiler

IP and UP POPs

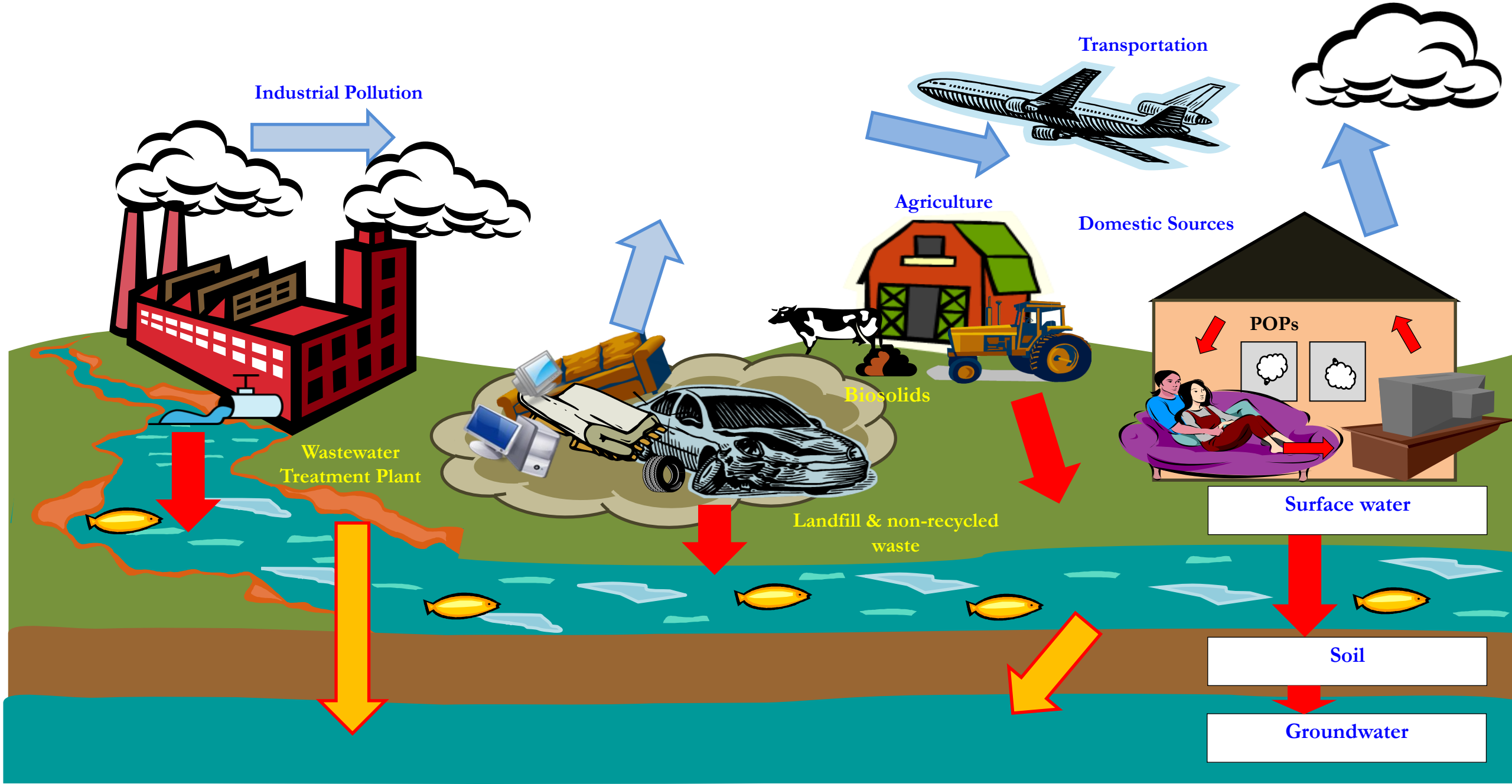
- Unintentionally produced (UP): Dioxins/furans (by-products in thermal processes)
- Intentionally produced (IP): Polychlorinated pesticides, transformer/capacitor oils (PCB), polybrominated flame retardants, …

Elimination of stockpiles (IP) - destruction (conservation)

Elimination of byproducts (UP) - prevention and destruction

Decontamination (IP + UP) - remediation of soils, sludges, water, sediments, …

Routes of POPs contamination



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Hot spots

- Chemical and petrochemical industry
- Waste disposal
- PCBs wastes
- Obsolete pesticides
- Waste lagoons
- Contaminated soils and sediments
- Waste incinerators
- Unspecified sources
- Military bases
- Wars areas

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Çevre ve İklim Eylemi Sektör Operasyonel Programı

Kalıcı Organik Kirleticiler

UNDP

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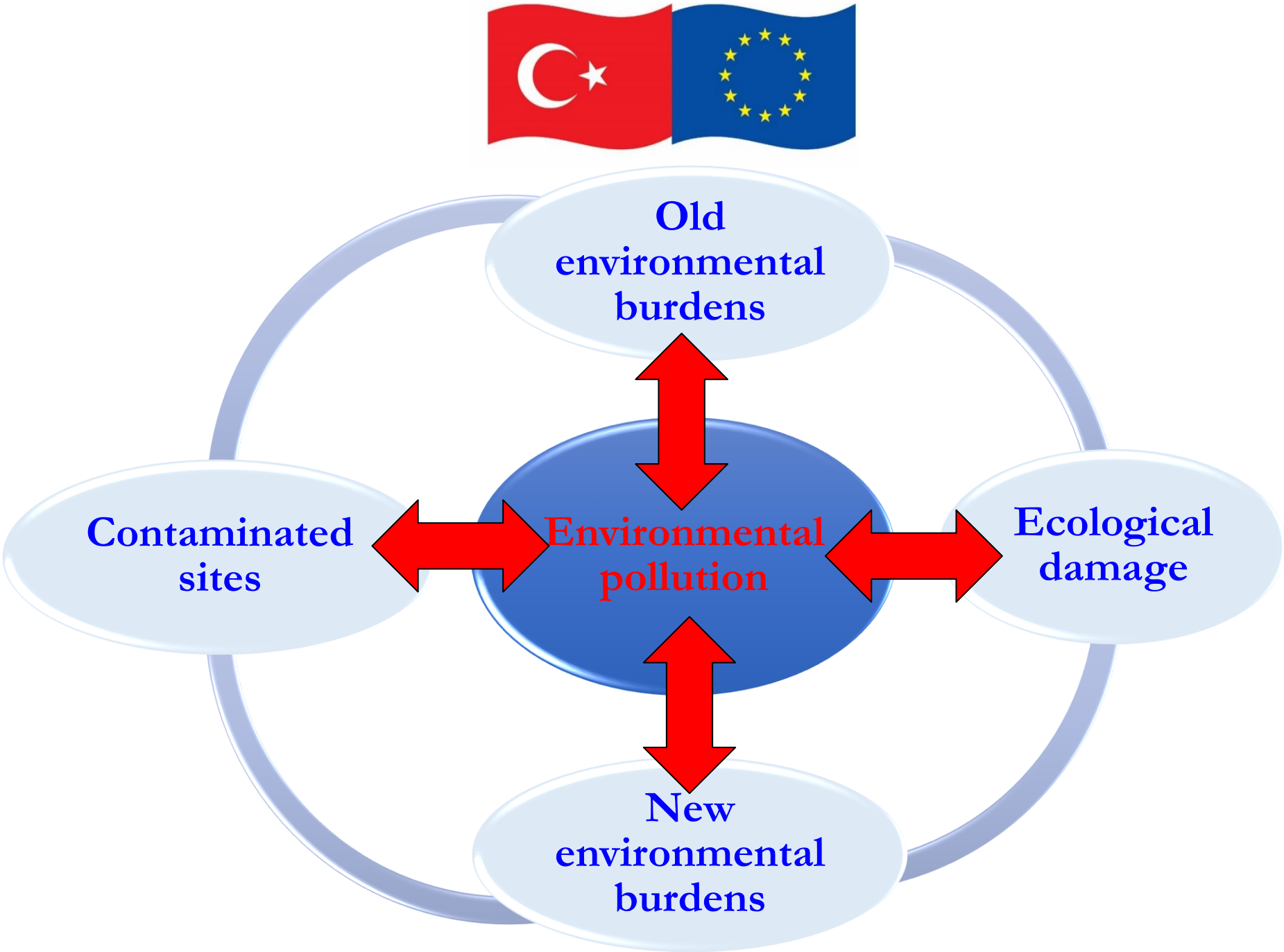
Potentially contaminated sites

- Areas of accidental leakage and spills of stockpiles (industry, like metal plating and professional users of fire-fighting foams, insecticides and aviation hydraulic fluids)
- Fire drill areas
- Contaminated soil and ground water from use of insecticides or in oil- and mining industry
- Production sites
- Landfill and dump sites
- Wastewater treatment plants
- Incineration of waste


Old environmental burdens
Contaminated sites
Environmental pollution
Ecological damage
New environmental burdens

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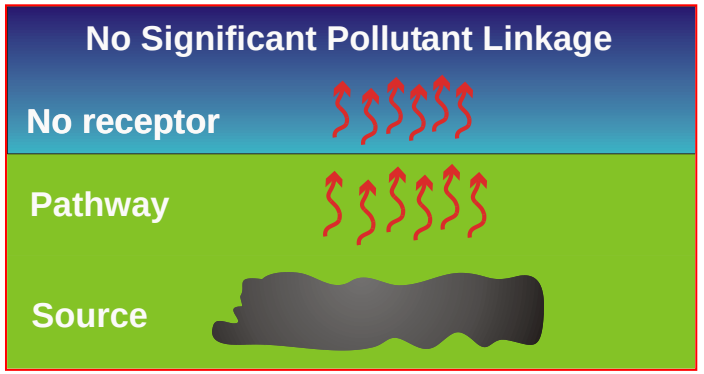
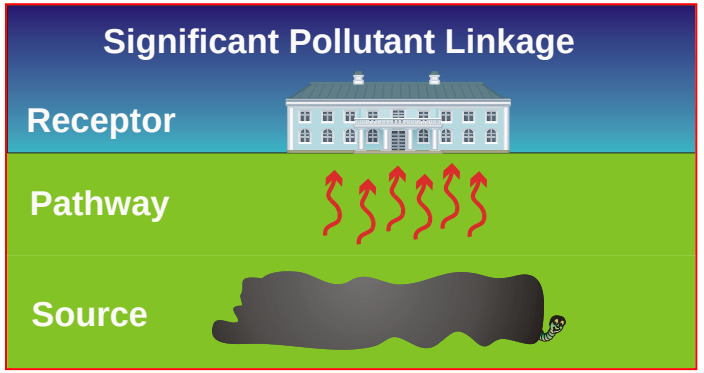
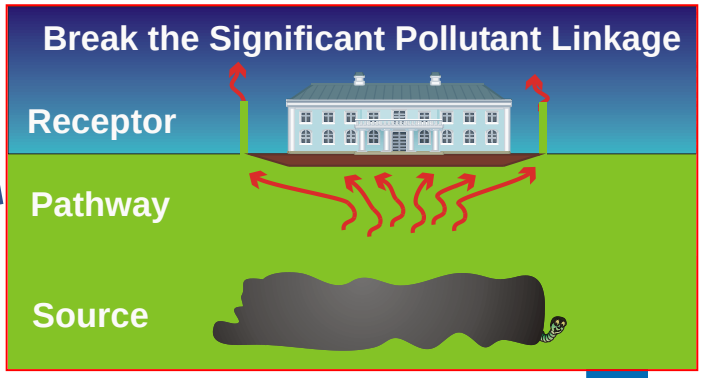
Source

Pathway

Receptor







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ÇEVRE, ŞEHİRCİLİK VE
İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

Çevre ve İklim Eylemi
Sektör Operasyonel Programı

Kalıcı
Organik
Kirleticiler

UNDP

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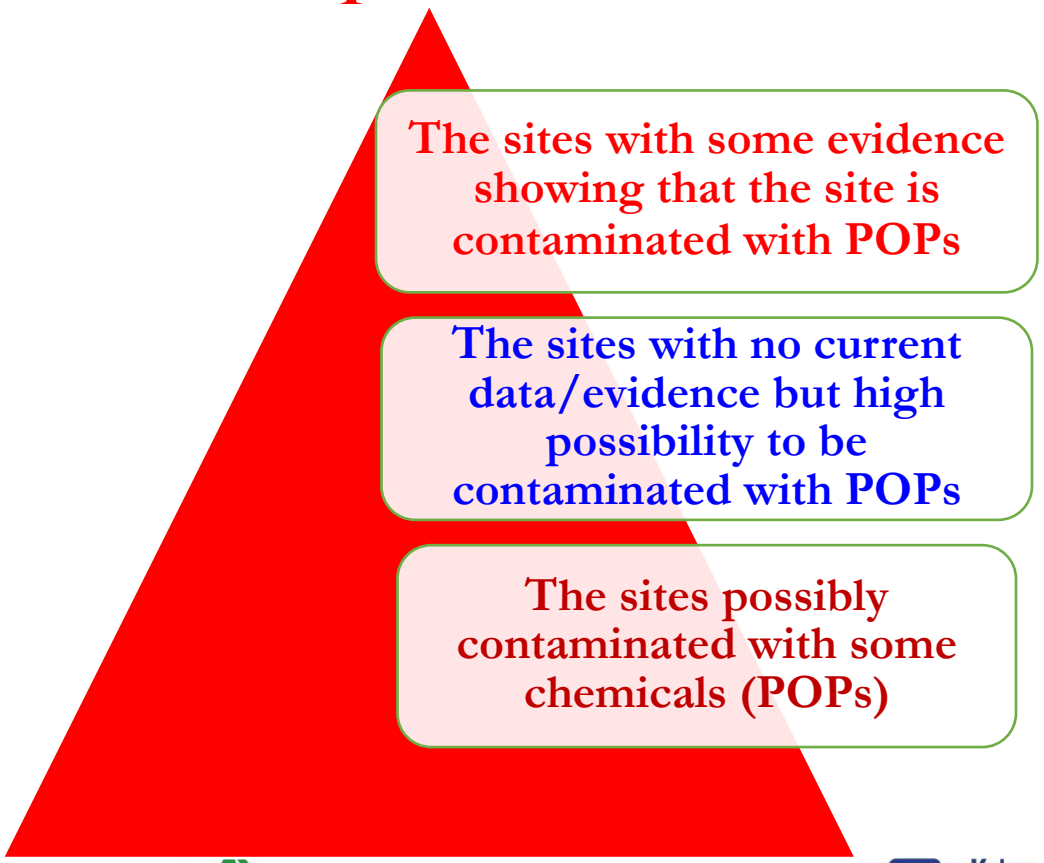
Inventory of stockpiles and contaminated sites



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Potentially contaminated sites

A site is generally considered contaminated by mixtures of chemicals when the concentration of one or more contaminants exceeds the regulatory criteria or poses a risk to humans and/or the environment.

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Potentially contaminated sites

UNIDO's Persistent Organic Pollutants: Contaminated Site Investigation and Management Toolkit (Contaminated Site Toolkit)

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ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

Çevre ve İklim Eylemi
Sektör Operasyonel Programı

Kalıcı
Organik
Kirleticiler

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Contaminated sites – Stockholm Convention – BAT/BEP

Draft Preliminary Framework for Identification, Management and Remediation of POPs Contaminated Sites Guidance Development

Prepared by Lee Bell on behalf of the POPs Contaminated Site Working Group of the Expert meeting on Best Available Techniques and Best Environmental Practices and Toolkit or Identification and Quantification of Releases of Dioxins, Furans and Other Unintentional Persistent Organic Pollutants under the Stockholm Convention. Vienna, Austria, 3-5 October 2017

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ÇEVRE, ŞEHİRCİLİK VE
İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

Çevre ve İklim Eylemi
Sektör Operasyonel Programı

Kalıcı
Organik
Kirleticiler

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Draft guidance on best available techniques and best environmental practices for the management of sites contaminated with persistent organic pollutants

STOCKHOLM CONVENTION

June 2021

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Çevre ve İklim Eylemi Sektör Operasyonel Programı

Kalıcı Organik Kirleticiler

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This Guidance on Best Available Techniques and Best Environmental Practices for Management of POPs Contaminated Sites has been developed by the experts on Best Available Techniques (BAT) and Best Environmental Practices (BEP) under the Stockholm Convention, to guide parties in the identification, assessment, management, and remediation of persistent organic pollutants (POPs) contaminated sites.

Justification for this guidance

The guidance has been developed in response to the need for an up to date, comprehensive reference for identifying, assessing managing and remediating such sites in an Environmentally Sound Manner (ESM).

Article 6 of the Stockholm Convention indicates that parties shall:

Endeavour to develop appropriate strategies for identifying sites contaminated by chemicals listed in Annex A, B or C; if remediation of those sites is undertaken it shall be performed in an environmentally sound manner.

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Çevre ve İklim Eylemi Sektör Operasyonel Programı

Kalıcı Organik Kirleticiler

UNDP

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Guidance - structure

The guidance is structured into 10 Modules in a stepwise manner to allow the reader to build on their understanding of the approaches required to address POPs contaminated sites.

The stepwise approach also follows the usual practical order of tasks included in the management of a contaminated site such as identification, stages of assessment, management, remediation and site monitoring and aftercare.

The technical assessment guidance modules are followed by modules on broader theory and principles management of POPs contaminated sites, a review of techniques and technologies to treat POPs contamination and destroy wastes, stakeholder engagement frameworks and a case study of a recent DDT contaminated site remediation.

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Guidance - structure

The technical sections conclude with a module that describes the broad legislative, policy and inventory approaches that are important for a country to establish its contaminated sites program and implement the technical measures that have been described in previous modules.

Finally, a module on Standard Operating Procedures (SOP) provides a detailed 'checklist' on technical operational matters for individual contaminated site assessment and safe working practices.

The modules are organised in a stepwise order to first allow the reader to become familiar with individual site identification and assessment requirements and then to bring the technical knowledge together within a national policy framework for implementation.

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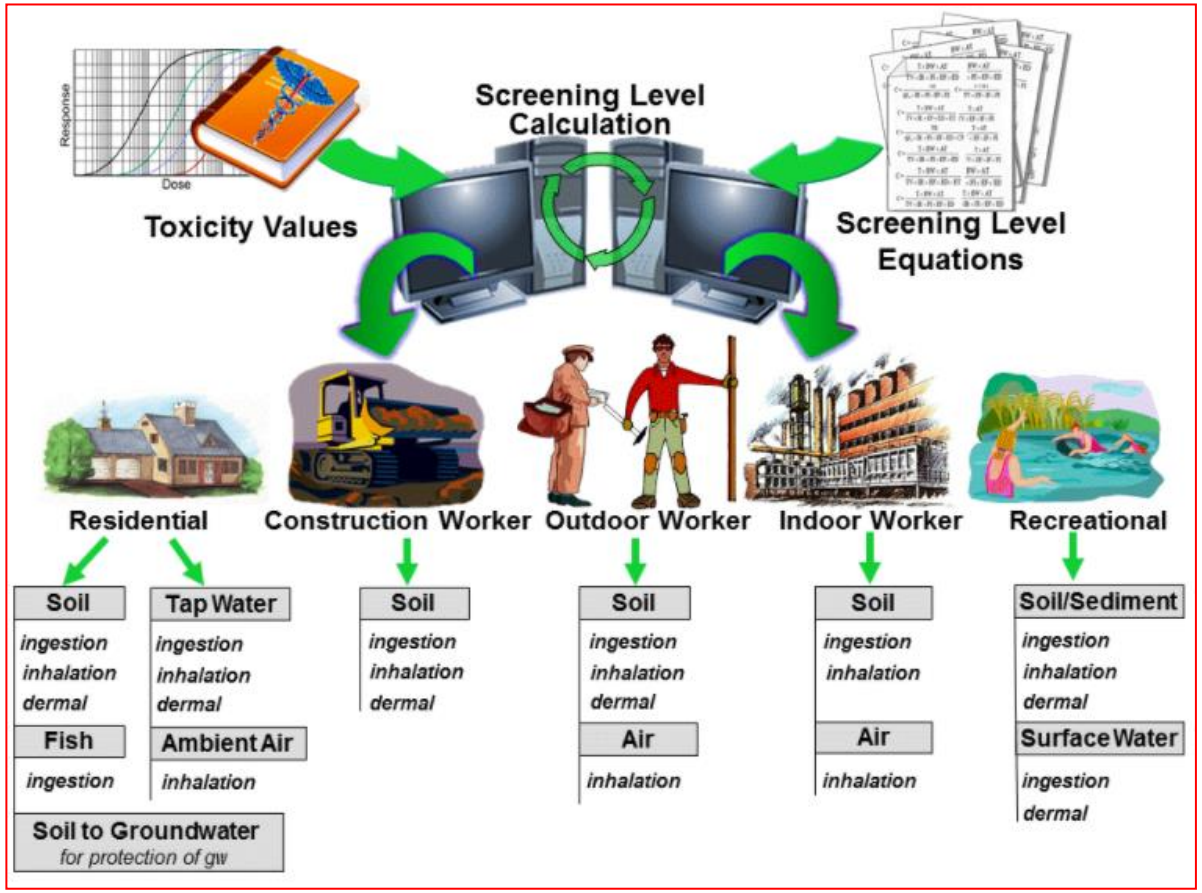
US EPA Site specific risk assessment tools for developing screening levels and preliminary remediation goals in a range of land use scenarios, US EPA (2020)



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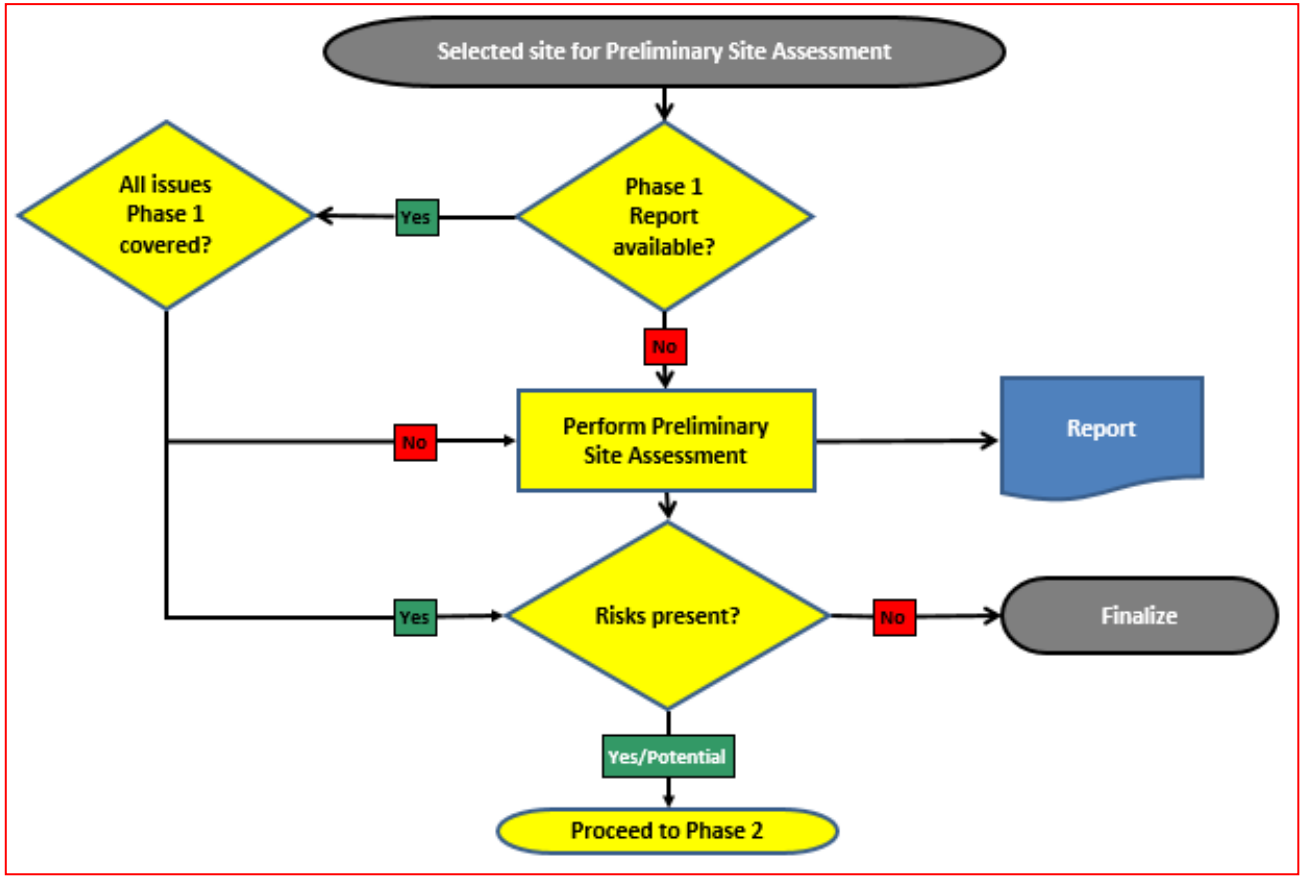
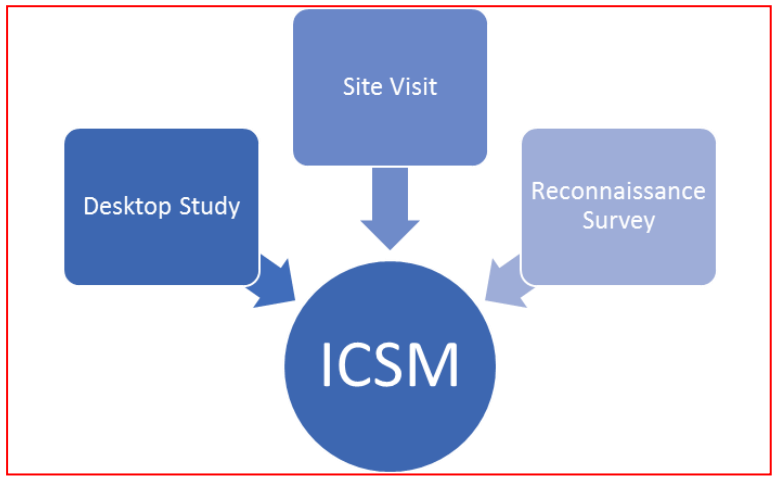
Process for the Phase 1 Preliminary Site Investigation for the sustainable management of contaminated sites



Initial Conceptual Site Model (ISCM)



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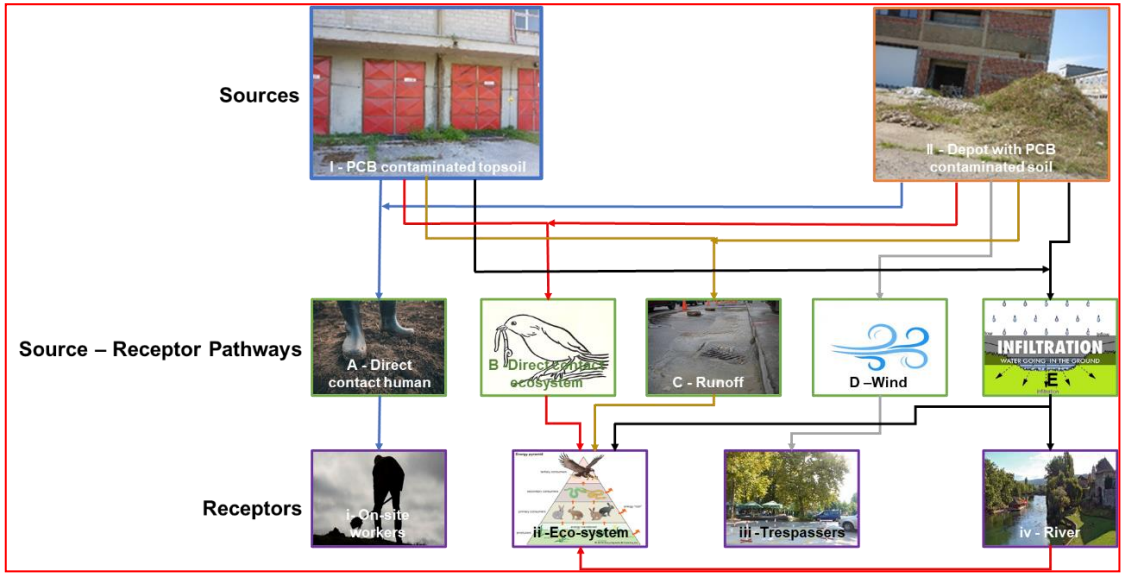
The ICSM provides an overview of:

- Potential source area(s) for the contamination
- Potential source receptor pathway(s) for the contamination (current and future)
- Potential receptor(s) for the contamination (current and future)



Example of a schematic ICSM regarding a site with contaminated topsoil and depot of contaminated soil

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Çevre ve İklim Eylemi Sektör Operasyonel Programı
Kalıcı Organik Kirleticiler
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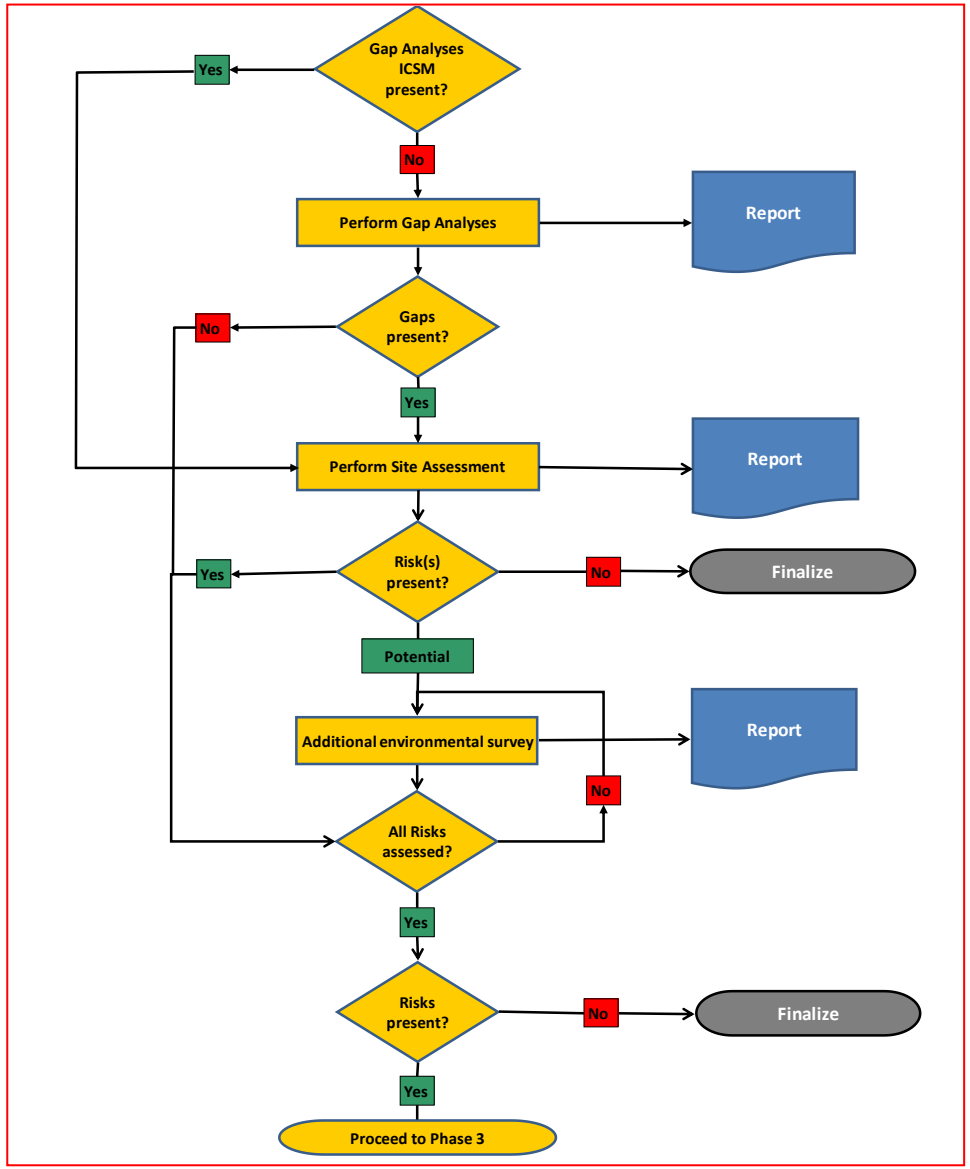
Process for the Phase 2, the Detailed Site Assessment of the sustainable management of contaminated sites



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ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

Çevre ve İklim Eylemi
Sektör Operasyonel Programı

Kalıcı Organik Kirleticiler

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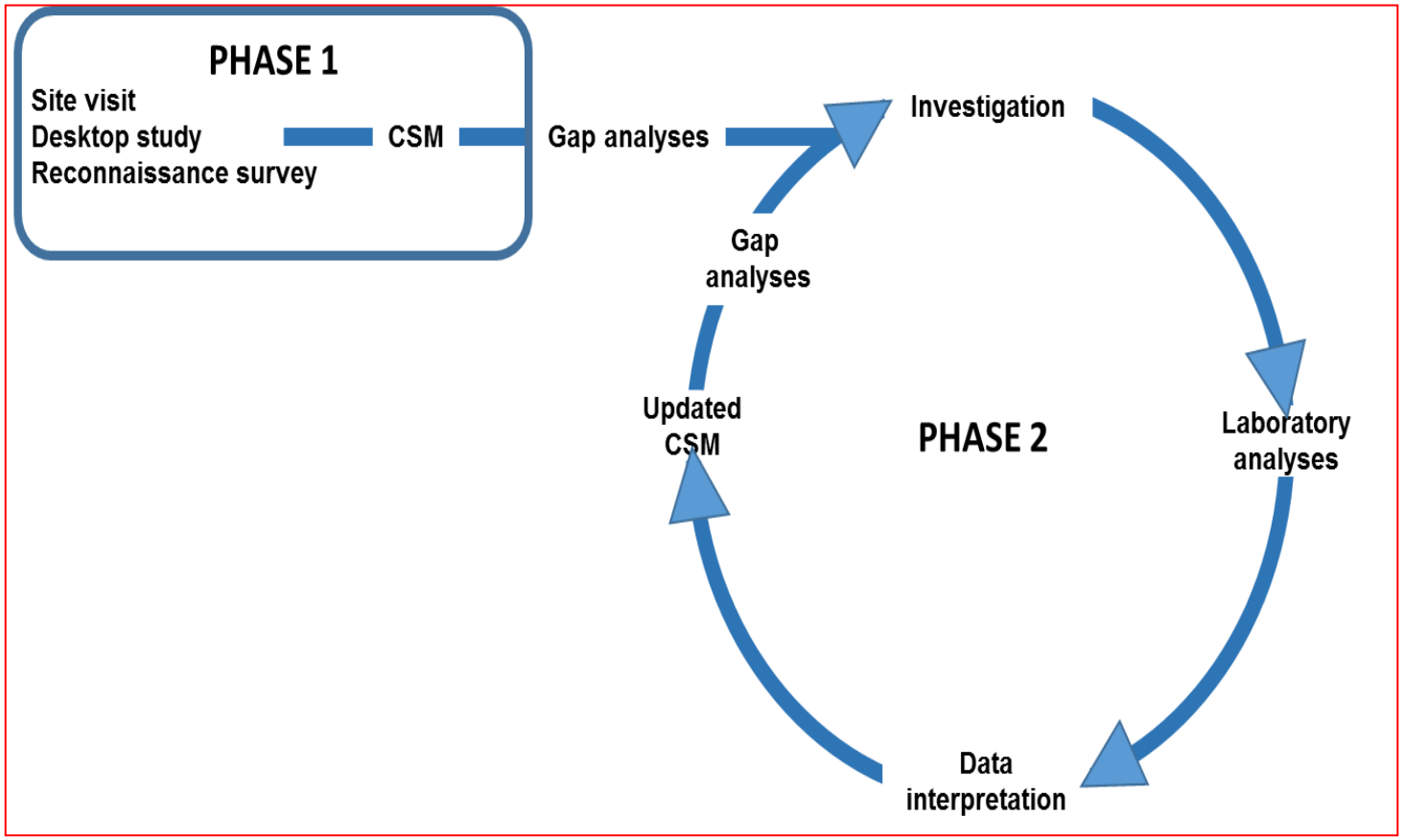

The ICSM is updated based on the results of the soil, bottom sediment, and groundwater investigations

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ÇEVRE, ŞEHİRCİLİK VE İKLİM DEĞİŞİKLİĞİ BAKANLIĞI

Çevre ve İklim Eylemi Sektör Operasyonel Programı

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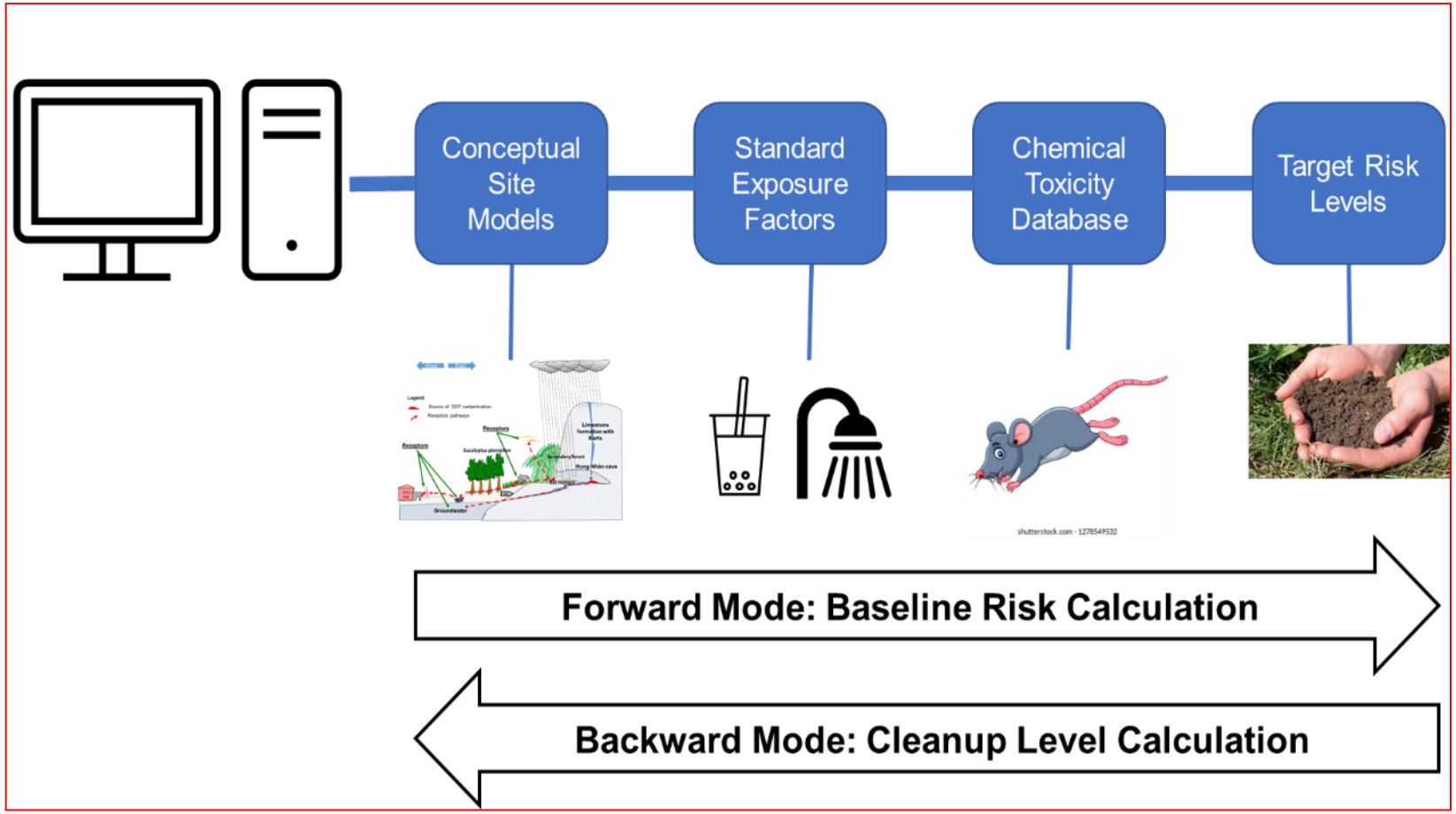
Difference between forward and backward mode risk modelling



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Çevre ve İklim Eylemi Sektör Operasyonel Programı
Kalıcı Organik Kirleticiler
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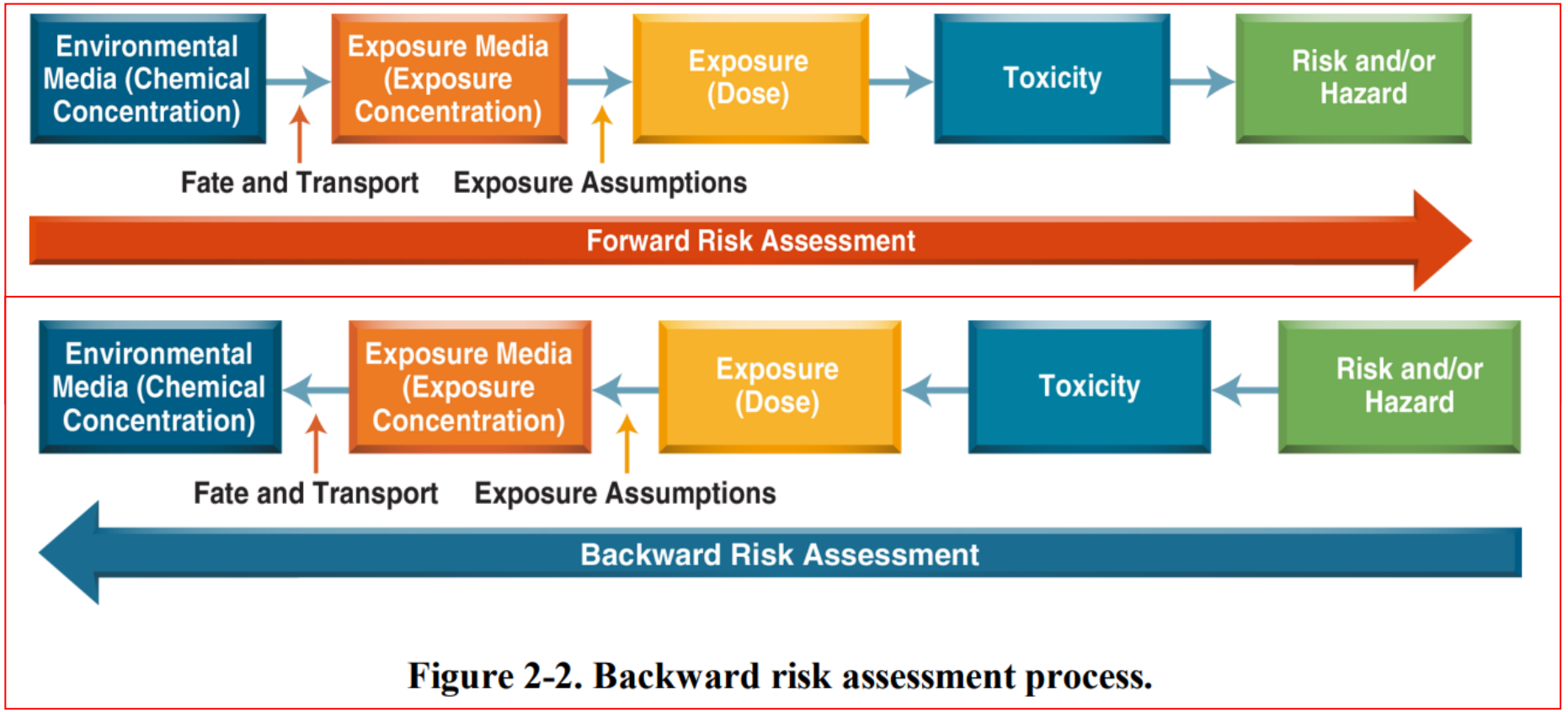

Figure 2-2. Backward risk assessment process.

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